OPERATING INSTRUCTIONS for the

ALLEN

MODEL F-52 PORTABLE FAST CHARGER

ALLEN EQUIPMENT CORRECTLY OPERATED

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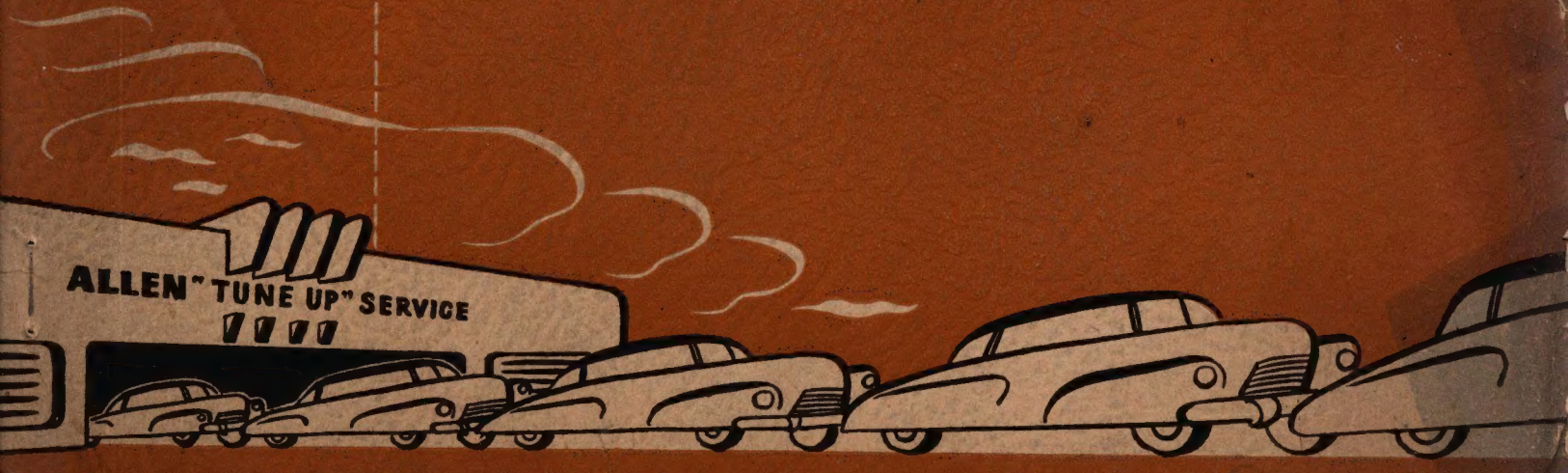

ALLEN ELECTRIC and EQUIPMENT COMPANY • KALAMAZOO, MICHIGAN

PRICE
50 CENTS

OPERATING INSTRUCTIONS

FOR THE

ALLEN F-52

PORTABLE FAST CHARGER

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PRICE 50¢

ALLEN ELECTRIC AND EQUIPMENT COMPANY

MANUFACTURERS OF TUNE-UP,
BATTERY, ELECTRICAL AND WELDING EQUIPMENT
2101-2117 NORTH PITCHER STREET
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PORTABLE EAST CHARGER

ALLEN E-25

FOR ARE

OPERATING INSTRUCTIONS

THE MODEL F-52
PORTABLE FAST CHARGER

PURPOSE OF THE PORTABLE FAST CHARGER

The Allen Model F-52 is a portable and compact battery charger with ample capacity for either fast or slow charging. Six charging rates are available giving up to 75 amperes for fast charging and approximately 10 amperes for slow charging. Actual rates depend upon the internal resistance of the battery and are shown on the Charger Ammeter.

Reserve capacity is provided to supplement the battery in starting an engine when the battery does not contain a sufficient charge to operate the vehicle starting motor. Small size with carrying handle on top together with light weight makes this charger ideal for use on service calls, as well as for use in the shop. Operation is from standard A.C. supply circuit. DO NOT connect to D.C. supply circuit.

CHARGING RATE SELECTOR
FIGURE NO. 1

CHARGING RATE SELECTOR

The extreme left position marked OFF turns the charger and ventilating fan off.

The first position to the right of OFF marked LOW is a low rate charge for tapering off after a fast charge and for keeping new batteries in a charged condition.

The five positions to the right of LOW position give increasing steps of charging rates. The ampere rate for each step is read on the ammeter scale.

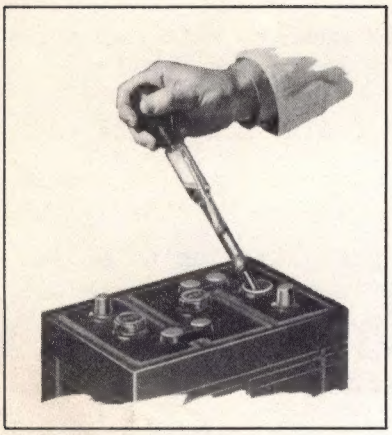
The CHARGING RATE SELECTOR should always be turned to the OFF position when the battery leads are either connected or disconnected to the battery.

CARE IN CHARGING BATTERIES

The gas which is produced in the battery cells during charging is dangerously explosive. Extreme care must be taken to avoid bringing open flames, lighted matches, etc., near batteries which are or have been on charge, and which are or have been gassing. Likewise, care must be taken to avoid causing any sparks near the batteries, since this can also set off an explosion of the gases.

OPERATING INSTRUCTIONS

PROCEDURE

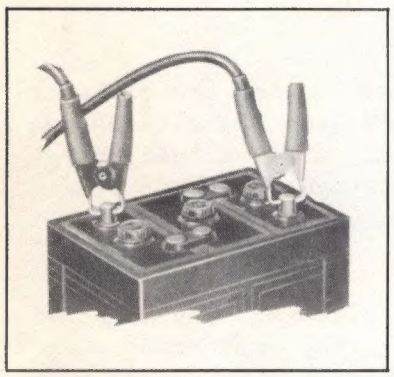


CHECK GRAVITY, ADD WATER IF NECESSARY. FIGURE NO. 2.

1. Test gravity of battery before charging. (Fig. No. 2). Batteries with a variation of 25 gravity points or more between cells are defective and will not hold a charge. Add water if necessary to bring level to approximately 3/8 inch above top of battery plates.

2. Turn CHARGE RATE SELECTOR to OFF and then insert attachment plug into A.C. power supply outlet. Refer to name plate on charger for proper voltage and cycles. DO NOT connect to D.C. supply outlet.

3. Connect Charger CLAMPS to battery cables or terminals in proper polarity. Red CLAMP to POSITIVE terminal and Black CLAMP to NEGATIVE terminal. Figure No. 3. Connections may be made to the battery without removing it from the vehicle by connecting charger leads in accordance with the correct polarity.



CONNECT CHARGER CLAMPS TO BATTERY POSTS. FIGURE NO. 3.

4. Turn CHARGE RATE SELECTOR to right to secure a charging rate of approximately 70 to 75 amperes as noted on the charger AMMETER. If impossible, assuming power line voltage is normal, see CHARGING SULPHATED BATTERIES page No. 3. If gravity reading is higher than 1.250 a fast charge is not recommended. Use the LOW rate of approximately 8 to 10 amperes.

5. Charge the battery at the above rate for approximately 30 to 45 minutes. After this time, the battery will be serviceable for starting and operating the engine. DO NOT LEAVE THE CHARGER ON HIGH RATE FOR LONGER THAN 1 HOUR AS DAMAGE TO THE BATTERY MAY RESULT FROM OVERCHARGING.

6. The characteristics of a battery are such that the greatest rise in gravity is obtained in the final charging period. Therefore, it is recommended that the LOW rate of approximately 10 amperes be used following the FAST CHARGE whenever time permits. Otherwise, the FINISHING CHARGE must depend on the car generator.

7. Always disconnect the CHARGER CLAMPS from the battery when the CHARGE RATE SELECTOR is turned to OFF or the charger is disconnected from the power supply line. DO NOT disconnect Charger Clamps from battery while charging, as sparks may ignite the hydrogen gas escaping from battery cells.

IMPORTANT INFORMATION

CHARGING SULPHATED BATTERIES

When a battery remains in a low state of charge for an extended period of time the sulphate on the plates becomes hardened and the battery is then referred to as sulphated. The harder the sulphate becomes, the more difficult it is to dissolve by the charging process.

If it is impossible to obtain a 70 ampere charging rate assuming power line voltage to be normal, the battery is sulphated to the extent its capacity is decreased. Some batteries may be desulphated by charging the battery for at least 48 hours on the LOW rate. Also, in some cases, batteries may be desulphated by a process of charging and then discharging and again recharging, repeating this process several times.

HYDROMETER TEST

The hydrometer shows the degree of charge of the battery as follows:

1.265 - 1.300	Fully Charged
1.235 - 1.260	Three-fourths charged
1.205 - 1.230	One-half charged
1.170 - 1.200	One-fourth charged
1.140 - 1.165	Barely Operative
1.110 - 1.135	Completely discharged

If a battery is completely discharged, there will be very little noticeable rise in hydrometer reading directly following the forty-five minute charge period.

HIGH RATE CHARGING IS NOT RECOMMENDED OR ADVISABLE FOR A BATTERY READING 1.250 GRAVITY OR HIGHER.

Large capacity batteries require a longer charging period than those of small capacity. It is suggested that the high rate be continued for a longer period than the initial forty-five minute charge period, provided the temperature of the solution does not rise above 125 DEGREES FAHRENHEIT.

STARTING ENGINES

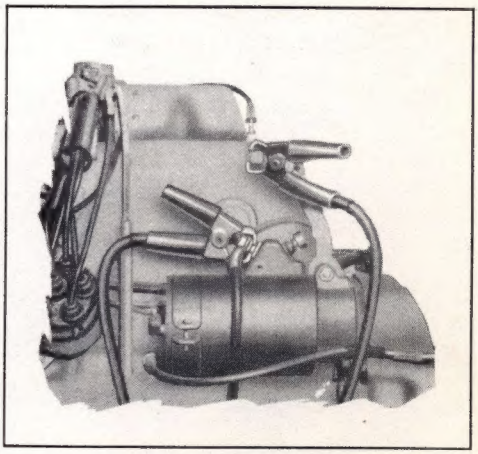
The F-52 Portable Fast Charger is extremely valuable as an auxiliary power supply to supplement a low vehicle battery in starting an engine when the battery will not operate the cranking motor.

1. Turn CHARGE RATE SELECTOR to OFF position and plug Charger into A.C. power supply line.

2. Connect Charger Clamps to Starter Post and Ground in proper polarity. Fig. No. 4.

3. Adjust CHARGING RATE SELECTOR to one of the high rate charging positions.

4. Close vehicle starter switch using same procedure as when starting engine under normal conditions.



OPERATING CRANKING MOTOR
FIGURE NO. 4

BATTERY CHARGING

CHARGING BATTERIES IN STORAGE

It is recommended that batteries in storage or batteries that are idle for a period of time be given a charge every 30 days. Even though no current is being withdrawn from the battery, it will self-discharge at a slow rate. The rate of discharge depends upon the temperature of the air, and is caused by the chemical action within the battery. The higher the temperature the faster the rate of self-discharge, as shown in Figure No. 5.

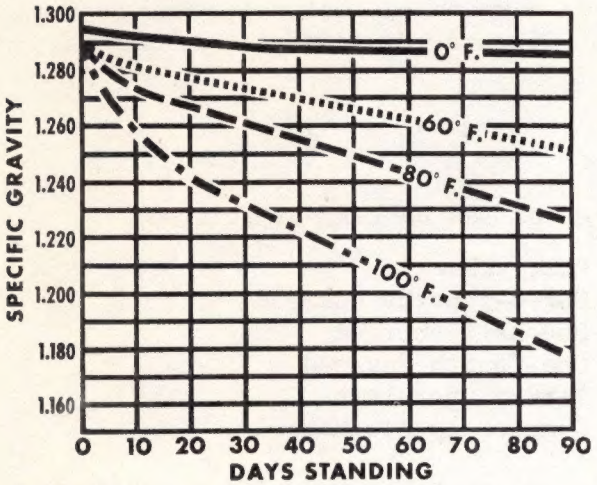
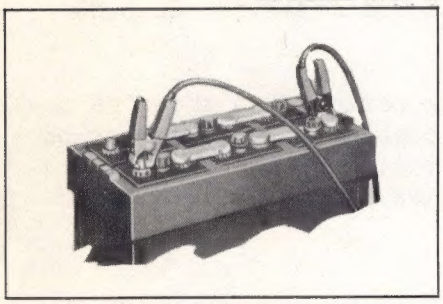


CHART OF SELF-DISCHARGE AT VARIOUS TEMPERATURES
FIGURE NO. 5

Note that in a 90 day period that at 100°F a battery will become completely discharged, as the gravity will drop from 1.300 fully charged, to 1.175 completely discharged. Self-discharge is particularly damaging to a battery because the sulphation is harder than the sulphation normally formed in the battery and therefore is more difficult to breakdown by the usual charging process. The battery may be so badly damaged by self-discharge that it will never come back to a charged condition. To protect against this, a battery in storage should be charged every 30 days, to bring it back to a fully charged condition. The rate of charge will depend upon the gravity. If gravity is below 1.250, it may be charged at a FAST RATE and if gravity is above 1.250, charge at LOW RATE.



CHARGING THREE CELLS OF 12 VOLT BATTERY
FIGURE NO. 6

CHARGING TWELVE VOLT BATTERIES

Charging twelve volt batteries can be accomplished with the Charger by charging three cells at a time, Figure No. 6.

CHARGING MORE THAN ONE BATTERY AT LOW RATE

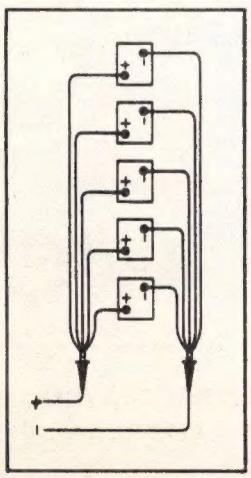
To slow-charge more than one battery over an extended period of time, use the following procedure:

1. Connect batteries in parallel - positive to positive, and negative to negative, Figure No. 7.

2. Connect Charger Clamps to line of batteries, RED to POSITIVE side of battery circuit, and BLACK to NEGATIVE side.

3. Turn CHARGING RATE SELECTOR to obtain desired charging rate.

The AMMETER registers the total charging rate to all batteries. The rate to each battery will be approximately the rate registered on the Meter, divided by the number of batteries on charge. EXAMPLE: Meter registers 50 amperes with five batteries connected in parallel, indicating 10 amperes to each battery.



CHARGING BATTERIES IN PARALLEL
FIGURE NO. 7

BATTERY CHARGING —Continued

CHARGING RADIO BATTERIES

Six volt radio batteries can be charged by using the same procedure as for six volt vehicle batteries. If the battery is of the low discharge type with thick plates, use the LOW CHARGE rate.

IMPORTANT NOTES

1. If the A.C. power circuit is interrupted for any reason while the Charger is operating, disconnect Charger CLAMPS to prevent the battery discharging through the rectifier unit.

2. If polarity of battery is not known and battery markings are destroyed, use a voltmeter to determine polarity before connecting Charger CLAMPS to battery. Connect RED CLAMP to POSITIVE terminal and BLACK CLAMP to NEGATIVE terminal.

3. All connections in the charging circuit to the battery must be clean and tight.

4. A gradual taper in the charging rate is normal as the battery voltage increases.

5. Do not exceed a charge rate of 75 amperes. A higher rate, if maintained over prolonged periods, will shorten the life of the Rectifier unit.

6. A low A.C. supply line voltage may cause difficulty in obtaining a 75 ampere charging rate.

7. The Allen Model F-166 Thermometer is designed to measure battery temperature, and may be purchased through an Allen Distributor. Sulphated batteries should not be FAST CHARGED, if the electrolyte temperature rises in excess of 110 degrees Fahrenheit. Normal batteries may be FAST CHARGED if the electrolyte temperature does not rise in excess of 125 DEGREES FAHRENHEIT.

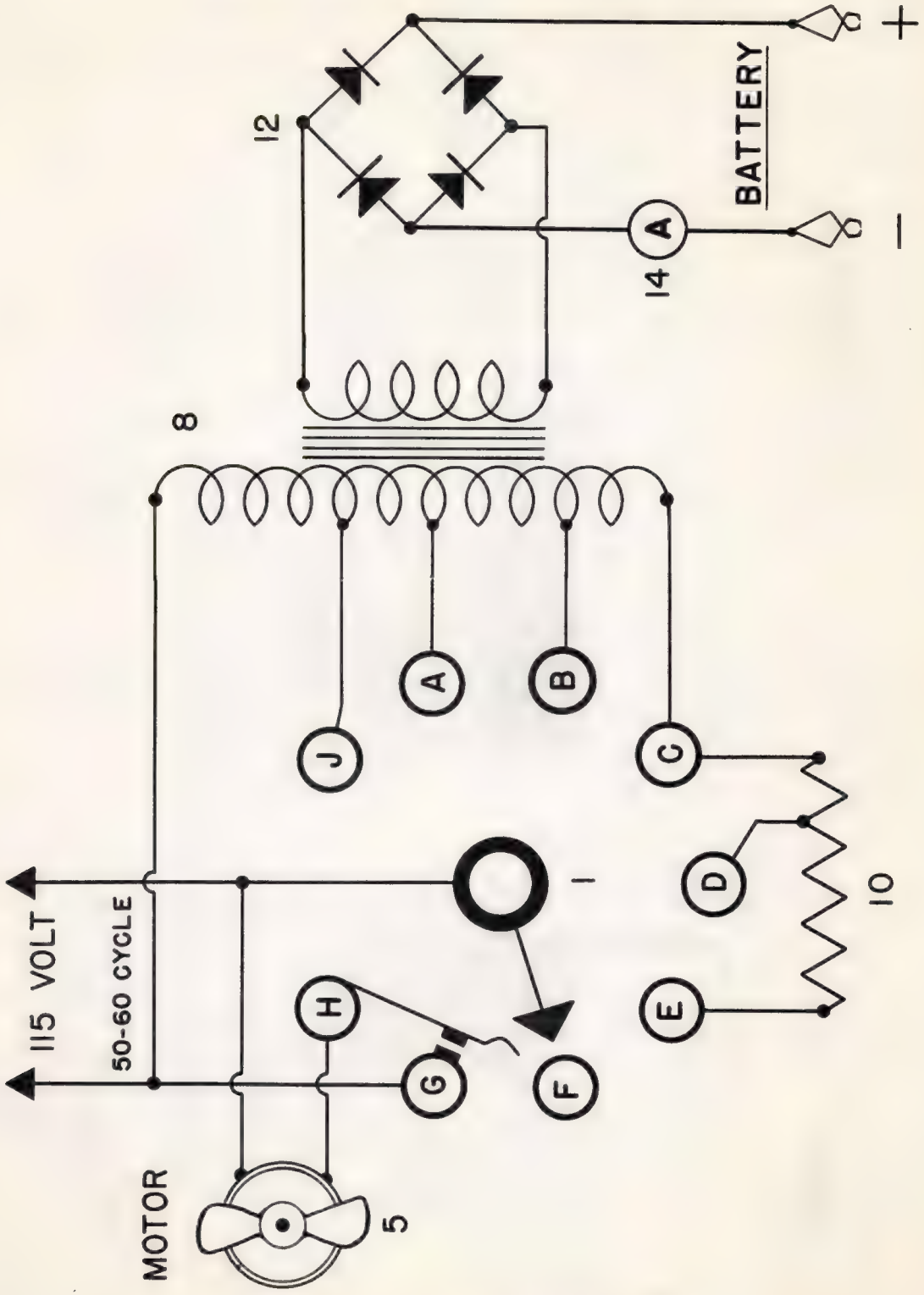
8. The Allen Model E-51C CELL TESTER is used for measuring battery cell voltage under load and may be purchased through an Allen Distributor. Defective cells can be located by measuring the voltage of each cell after charging. A defective cell will have more than .2 of a volt less than the good cells of the battery.

WRITING THE FACTORY

Should it be necessary to communicate with the factory, relative to your Charger, ALWAYS furnish its name, model number and serial number so that prompt and efficient attention can be rendered.

ALLEN ELECTRIC AND EQUIPMENT CO.

F-52 PORTABLE FAST CHARGER SCHEMATIC CIRCUIT FOR MODELS STAMPED SERIES "C"



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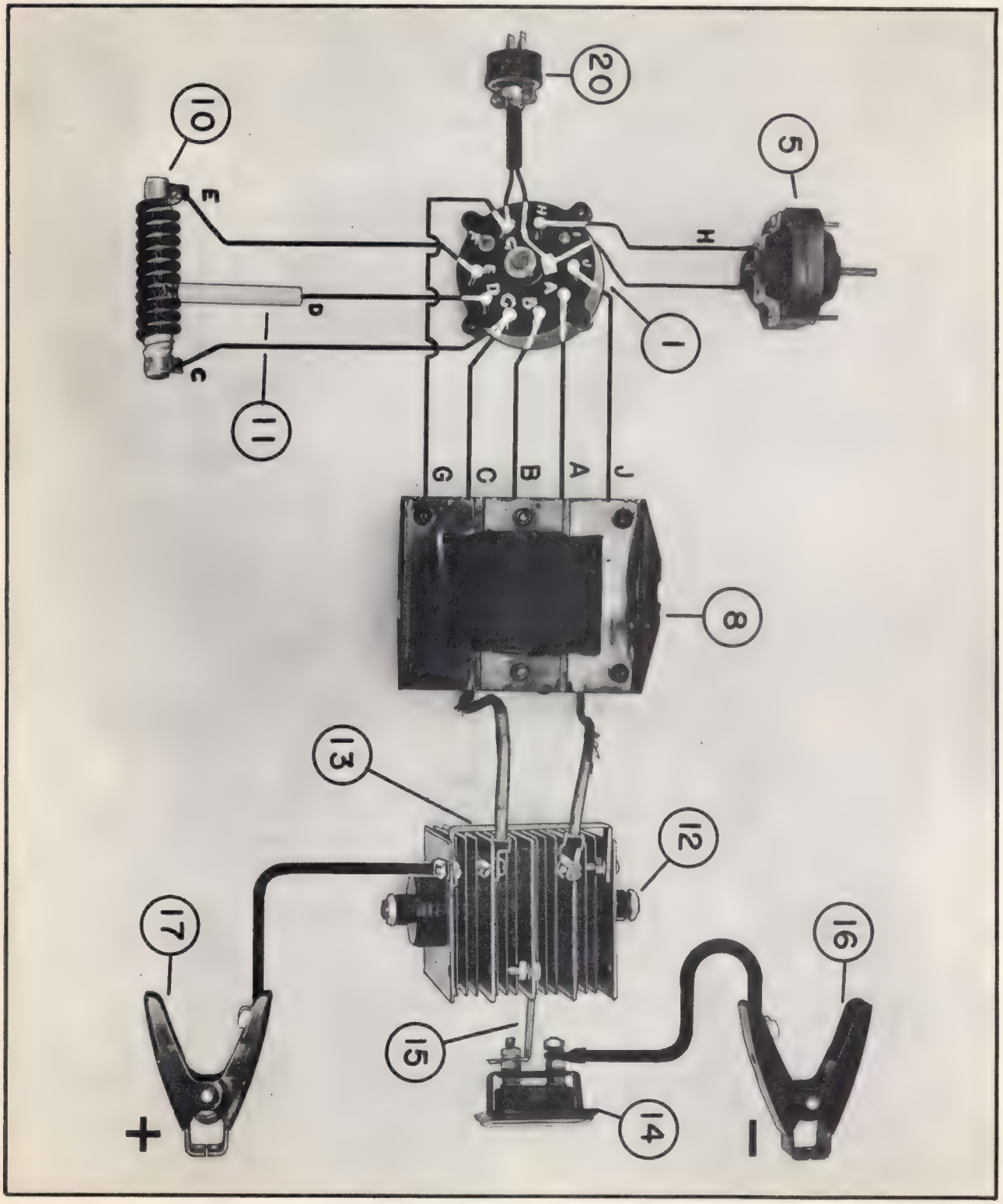
F-52 PORTABLE FAST CHARGER CIRCUIT DIAGRAM FOR MODELS STAMPED SERIES "C"



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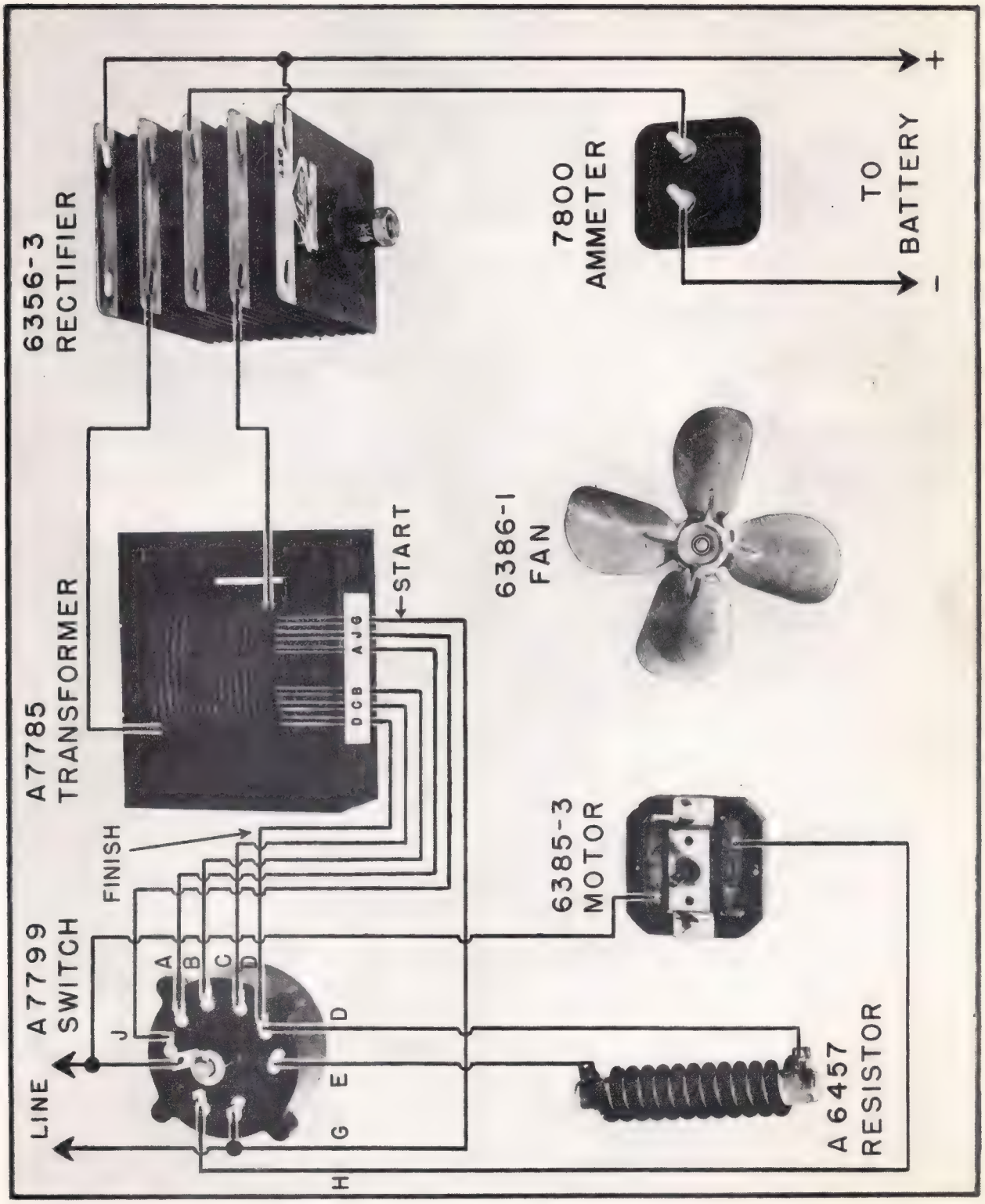
F-52 PORTABLE FAST CHARGER CIRCUIT DIAGRAM

FOR MODELS STAMPED "A" OR "B"



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REPLACEMENT PARTS LIST FOR F-52

ALLEN PORTABLE FAST CHARGER

FOR MODELS STAMPED SERIES "A", "B" OR "C"

NOTE: Specify Model and Serial Number of Equipment for which parts are desired. This is essential to insure prompt handling of your order.

KEY	PART	DESCRIPTION	PART NO.
1	Switch	Charging Rate Selector Switch	A-7799
2	Insulator	Switch Insulator	7813
3	Plate	Switch Indicator Plate	A-7776-1
4	Knob	Charging Rate Switch Knob	2909
5	Motor	Induction type Fan Motor	6385-5
6	Fan	Fan Blade only	6386
7	Housing	Fan Housing	A-7765
8	Transformer	Complete with Rectifier Brackets	A-7785
9	Baffle	Paper Baffle (2 Req.)	7790
10	Resistor	Wire Wound Resistor For Series "C" Tapped	A-6457-1
		Wire Wound For Series "A" & "B" No Tap	A-6457
11	Lava Tube	Lava Tube for Resistor Tap	2297
12	Rectifier	100 Amp-Copper Sulphide Rectifier	6356-3
13	Jumper	Copper Jumper for Rectifier	7781
14	Meter	Ammeter	7800
15	Jumper	Copper Jumper from Rectifier to Meter	7810
16	Clip only	Black Clip (Neg.)	RK-A-6400-4
17	Clip only	Red Clip (Pos.)	RK-A-6400-3
18	Cable & Clip	Black (Neg.)	A-6400-4
19	Cable & Clip	Red (Pos.)	A-6400-3
20	A.C. Plug	Common A.C. Plug (Male)	5256
21	A.C. Cable	#14 2 Conductor with Plug 13'6"	A-7806-1
22	Top	Complete with Bakelite Handle	A-7762-1
23	Handle only	Bakelite Handle	7767
24	Bottom	Metal Bottom	6352-8
25	Feet	Rubber Feet (8 Req.)	3447
26	Case only	Case no top or bottom	A-7750
27	Grommets	Rubber Grommets for Cables (3 Req.)	7809

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F-52 PORTABLE FAST CHARGER PARTS LOCATION PHOTOGRAPH FOR MODELS STAMPED "A", "B", OR "C"

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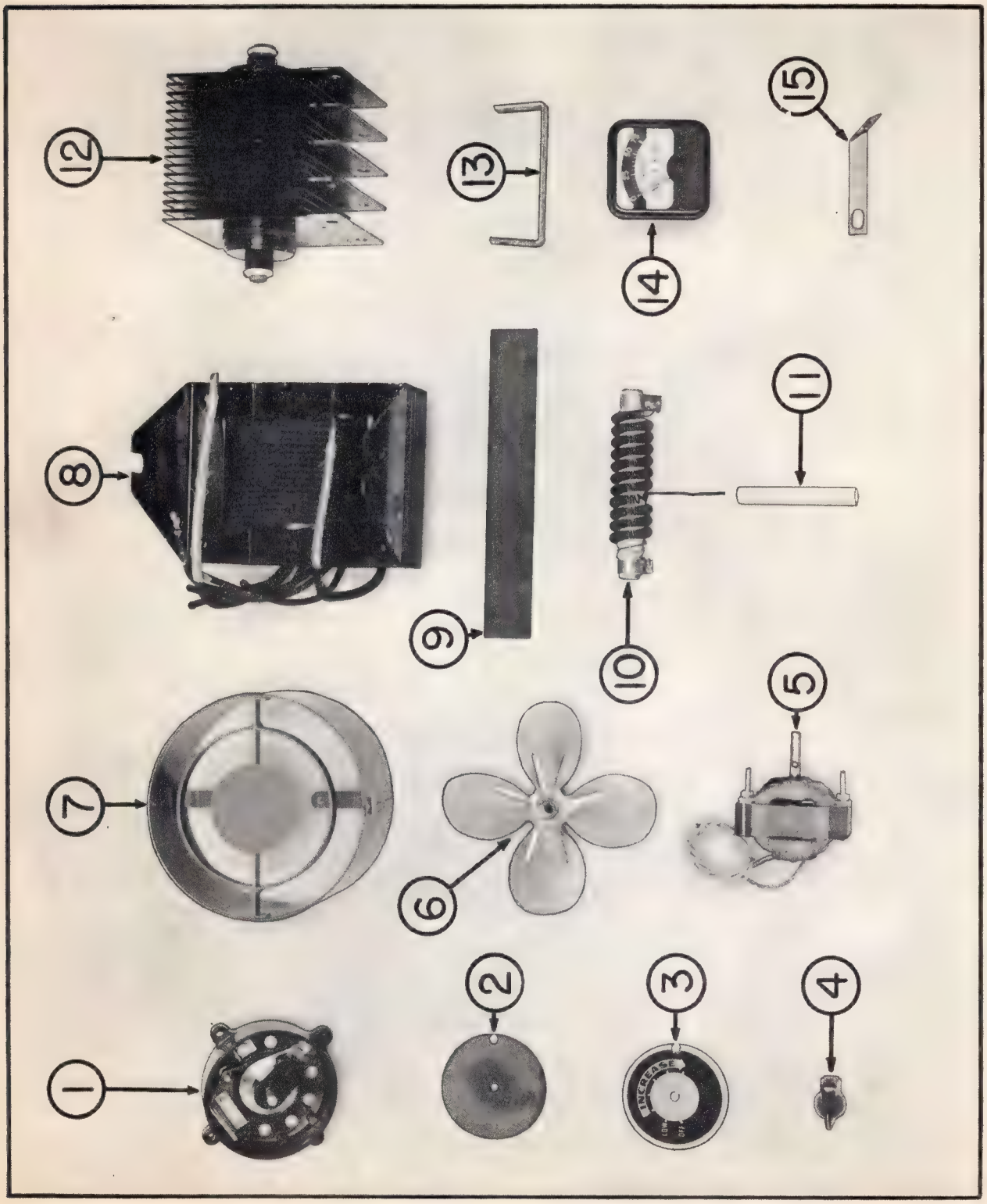
F-52 PORTABLE FAST CHARGER PARTS LOCATION PHOTOGRAPH

FOR MODELS STAMPED "A", "B", OR "C"



CARE AND MAINTENANCE OF ELECTRICAL EQUIPMENT

1. DO NOT allow petroleum products, acids or alkalies, to come in contact with painted surfaces or plastic components.

2. Use a clean soft cloth for a DAILY dust cloth.

3. PLASTIC PANELS, LEADS AND SOCKS should be cleaned with MILD SOAP AND WATER.

4. SMALL SCRATCHES can sometimes be removed from plastic with rouge.

5. CORRODED TERMINALS can be cleaned with a solution of baking soda and water.

6. HEAT, generated in leads and clips, which becomes more than warm to the touch is a result of a poor connection and will result in an extra load being placed on the unit.

7. LARGE ranges have been placed on meters for heavy loads, SMALL ranges for finer reading. Always select the range large enough for the job, or damage will result.

8. IN MAKING ELECTRICAL CONNECTIONS, always watch the meter when you cause the current to flow; don't overload the meter. Use the proper shunt.

9. MOISTURE is second only to grease-and-dirt in shortening the life of electrical equipment. One of the less obvious ways in which moisture can damage equipment is to store in a non-heated area. Moisture can cause meters to stick, transformers to short, insulation and condensers to deteriorate.

10. METERS REQUIRING A POWER SUPPLY. A.C. or D.C. current may be required. It may be of a high or low voltage. Exercise caution in connection units to proper voltage source.

11. POWER TIMING LAMP. Its life will be greatly lengthened if disconnected when not in use.

12. POLARITY. Care should be exercised to see that units are not connected in reverse polarity.

13. In most cases, when units have been subjected to materials used in fire extinguishers, they may be considered beyond repair in making insurance adjustment.

14. SIX VOLT PLUG-IN RECEPTACLE UNITS will work better after a small amount of powdered graphite has been applied.

15. FANS. Units having a fan for cooling purposes cannot function well if covered, as air flow is restricted.

16. METERS exposed to the sun's rays for long periods of time will fade.

17. GROWLERS should not be turned "ON" unless first an armature has been placed into position to test.

18. UNITS USING FLASHLIGHT BATTERIES should be turned to the "OFF" position when not in use. When the batteries become discharged they should be removed at once, or damage will result.

19. IN EACH INSTANCE, REFER TO THE INSTRUCTION MANUAL BEFORE ATTEMPTING TO OPERATE. MINOR CHANGES HAVE SOMETIMES BEEN MADE, AND NEW MODELS MAY OPERATE DIFFERENTLY THAN PREVIOUS ONES.

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2101 N. PITCHER STREET KALAMAZOO, MICHIGAN, U. S. A.
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WARRANTY

Allen Equipment is warranted to be free from defects in material and workmanship under normal use and service for a period of twelve (12) months after date of delivery to the original using purchaser.

Equipment found defective within warranty, and returned to our Factory or Authorized Field Service Station, will be repaired no-charge and returned by collect transportation.

WARRANTY PROCEDURE

Warranty adjustments are contingent upon the following:

(a) Your having previously mailed to the factory (at the time of purchase) the Warranty Card which accompanied the equipment.

(b) Your entering complete information on the Repair Card taken from the Instruction Book. This card must accompany the equipment when it is returned for warranty repair.

SERVICE PROCEDURE

In the event service is required, contact the Allen Wholesaler immediately from whom purchase was made for assistance. If necessary to return equipment for repair, furnish a full description of the trouble and give the model and serial number for identification.

REPLACEMENT PARTS

Replacement Parts may be obtained by ordering from your Allen Wholesaler. Part number for Replacement Parts may be found in the back of the Instruction Manual.

Always specify model and serial number of the equipment, as well as voltage and cycles, as indicated on the equipment name plate when ordering parts.

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